

The patient rallied well after the operation, but for several weeks afterwards her temperature ranged from  $101^{\circ}$  to  $102^{\circ}$  F. and her pulse from 138 to 160. Then the temperature began to go still higher, and there was considerable abdominal pain, with some distention. On October 16 the area of dulness over lower right chest was found to be increasing. A needle was inserted and some gelatinous-like substance withdrawn. About twelve hours later the chest was opened, a section of rib removed, and a small drainage tube inserted. This was unfortunately removed at the end of twelve hours. The temperature, which had been up to  $104^{\circ}$  F., gradually fell, and the patient got along fairly well until October 23, when signs of sepsis became noticeable. Her temperature again became elevated, and there was considerable pain over the region of the liver. The previous incision in that locality was enlarged, but the wound was found absolutely clean. A second incision was made later posteriorly over the right chest, opening into a small pleural pus cavity walled off by adhesions. On December 20 further sections of the ribs were removed, and counter-drainage instituted, after breaking up all adhesions in the pleural cavity. Following this the temperature rose to  $106^{\circ}$  F., but soon fell to normal, and there was no further trouble. Under proper exercises, the lung had since expanded, and the patient was now enjoying excellent health. She undoubtedly had a rupture of the pleura together with the rupture of the liver.

#### BULLET WOUND OF PLEURA, LUNG, DIAPHRAGM, AND LIVER.

DR. HAWKES showed a bullet that had passed through a patient's pleura, lung, diaphragm, and liver, and had lodged to the inner side of the upper pole of the right kidney, carrying with it four pieces of clothing. Recovery followed operation for hæmorrhage from the liver.

#### SOME CONSIDERATIONS REGARDING WOUNDS OF THE LIVER.

DR. BENJAMIN T. TILTON read a paper with the above title, for which see page 20.

DR. ALEXANDER B. JOHNSON said his experience in regard to the treatment of wounds of the liver had been very similar to

that related by Dr. Tilton. His personal experience had been limited to five operative cases, two of which he had presented to this Society. In one of the cases there was a rupture of the lung, kidney, and liver: in that instance the liver was torn away from its attachments to the diaphragm, and in order to reach the wound it was necessary to divide the suspensory ligament. This having been done, packing was introduced between the liver and diaphragm, and the liver itself was lifted upward by a mass of packing underneath. The patient, a child, recovered. In another case of rupture of the liver resulting from a run-over accident in a man, the diagnosis was made of shock due to an internal injury. In this case the rupture extended to the posterior border of the lower surface of the liver, and it was impossible to stop the hæmorrhage by packing, and the patient bled to death. In a similar case, Dr. Johnson said, he would be inclined to crowd in a large mass of packing in front of the liver, after first cutting the suspensory ligament. By this method the hæmorrhage might possibly have been checked. Incised wounds of the liver, the speaker said, where they could be reached, could usually be successfully treated by suture. In another case coming under his observation there was a rupture of the superior surface of the liver; a chronic peritonitis resulted with the formation of adhesions between the anterior border of the liver and the abdominal wall, giving rise to considerable exudate of bloody serum and liver tissue. The diagnosis was made of probable abscess of the liver on account of the apparent increase in the size of the organ. The drainage of the cavity resulted in recovery.

DR. GEORGE E. BREWER referred to two cases of severe visceral lesions resulting from abdominal contusions in which there were very slight evidences of shock. In one case of complete rupture of the spleen the man was able to walk two miles after receiving his injury. In another case, that of a railroad man who was caught between the buffers of two cars and sustained a rupture of the right lobe of the liver, the early symptoms were very slight. Dr. Brewer said he cited these two cases because Dr. Tilton had made the statement that in those instances where the symptoms of grave shock were absent, the treatment should be expectant. Severe intra-abdominal hæmorrhage not infrequently occurs with very slight symptoms of shock in the early stage.

In regard to the possibility of remote consequences from injuries of the liver, Dr. Brewer said his attention had recently been called to an article by Kehr, in which the writer described a condition of hepatic apoplexy, a hæmatoma of the liver substance from apparently slight injury. This hæmatoma might become absorbed, or it might become infected and give rise to an abscess which might develop very rapidly and produce marked symptoms of sepsis. Last spring, Dr. Brewer said, he was called to operate in a case of supposed acute intestinal obstruction. The patient had had a sudden rise of temperature, with tympanites, pain, muscular rigidity, vomiting, and obstinate constipation. A gradually increasing area of hepatic dulness was found, into which a needle was finally introduced through the back, and a syringeful of chocolate-colored fluid withdrawn. This was found to be composed of blood and pus. Subsequently, a rib was resected, and on going down through the diaphragm into the liver an abscess was reached and a pint of dark-colored pus evacuated. From this patient the history was afterwards obtained that three months before she had been thrown from her horse, striking on her right side. It was probably one of those cases where a hæmorrhage into the liver substance had become infected.

DR. OTTO G. T. KILIANI said he had seen two cases of wounds of the liver in which he had met with great difficulty in checking the hæmorrhage. He referred to an apparatus for stopping the bleeding in these cases by means of hot air or steam.

DR. GEORGE WOOLSEY said he agreed with Dr. Brewer that very slight evidences of shock were sometimes observed in cases of severe visceral injury, and that exploratory operation was indicated in case there was any serious suspicion of such injury. In cases of injury of the liver he had found packing effective in stopping the hæmorrhage. He mentioned a case of injury of the liver in a four-year-old child that had been run over. Examination showed a deep and narrow wound of the liver near the transverse fissure. There was a great deal of hæmorrhage into the abdominal cavity. On picking up what seemed to be a ruptured vessel, it proved to be the common bile duct completely ruptured near its lower end. This was implanted into the duodenum with a few fine silk sutures. For a few days after the operation the stools were bile-stained; then the bile began to flow quite freely through the external wound alongside the cigarette drain, while

the stools gradually became paler, until they were clay-colored. By the end of the second week, as the patient was evidently losing ground, and a second operation was undertaken, cholecystenterostomy was performed, but the attempt to find and tie off the duct had to be given up on account of the adhesions and the poor condition of the patient. The patient died within twenty-four hours after the second operation. Such an injury is very unusual, and no case has been met with in medical literature where a primary radical operation has been done in such a case. As a result of his experience, Dr. Woolsey is convinced that the preferable procedure in such a case would be cholecystenterostomy with ligature of both ends of the ruptured duct.

DR. TILTON, in closing, said he agreed with Drs. Brewer and Woolsey that severe visceral injuries might be present without giving rise to early severe symptoms. Even these cases could usually, however, be recognized by the presence of some local symptom or by some subsequent development. Unless distinct evidences of injury could be made out, the speaker said he was inclined to wait before operating until dulness indicated the presence of blood, or until the onset of other symptoms rendered a laparotomy advisable. Of course, in the presence of marked symptoms at the outset, an operation should be done as soon as possible.